

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Electro-Hydraulic Actuator**with type designation(s)
EDQ x, ESQ x

Issued to

**Eltorque Automation (Xiamen) Ltd.
Xiamen City,, Fujian Province,, China**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:****Temperature D
Humidity B
Vibration A
EMC B
Enclosure D**Issued at **Hamburg** on **2020-12-09**This Certificate is valid until **2025-12-08**.for **DNV GL**DNV GL local station: **Xiamen**Approval Engineer: **Holger Jansen****Joannis Papanuskas
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

This certificate covers the following components:

EDQ (Double acting): EDQ120, EDQ350, EDQ700, EDQ1400, EDQ3000, EDQ5000, EDQ10K, EDQ20K
 ESQ (Single acting): ESQ160, ESQ350, ESQ 900, ESQ2000

Model	Power supply	Interface
EDQ120	1x 220Vac	passive digital
EDQ120	1x 220Vac	analogue
EDQ120	1x 220Vac	double CAN
EDQ120	1x 220Vac	active digital
EDQ120	2x 220Vac	passive digital
EDQ120	2x 220Vac	analogue
EDQ120	2x 220Vac	double CAN
EDQ120	2x 220Vac	active digital
EDQ350	1x 220Vac	passive digital
EDQ350	1x 220Vac	analogue
EDQ350	1x 220Vac	double CAN
EDQ350	1x 220Vac	active digital
EDQ350	2x 220Vac	passive digital
EDQ350	2x 220Vac	analogue
EDQ350	2x 220Vac	double CAN
EDQ350	2x 220Vac	active digital
EDQ700	1x 220Vac	passive digital
EDQ700	1x 220Vac	analogue
EDQ700	1x 220Vac	double CAN
EDQ700	1x 220Vac	active digital
EDQ700	2x 220Vac	passive digital
EDQ700	2x 220Vac	analogue
EDQ700	2x 220Vac	double CAN
EDQ700	2x 220Vac	active digital
EDQ1400	1x 220Vac	passive digital
EDQ1400	1x 220Vac	analogue
EDQ1400	1x 220Vac	double CAN
EDQ1400	1x 220Vac	active digital
EDQ1400	2x 220Vac	passive digital
EDQ1400	2x 220Vac	analogue
EDQ1400	2x 220Vac	double CAN
EDQ1400	2x 220Vac	active digital
EDQ3000	1x 220Vac	passive digital
EDQ3000	1x 220Vac	analogue
EDQ3000	1x 220Vac	double CAN
EDQ3000	1x 220Vac	active digital

Model	Power supply	Interface
EDQ3000	2x 220Vac	passive digital
EDQ3000	2x 220Vac	analogue
EDQ3000	2x 220Vac	double CAN
EDQ3000	2x 220Vac	active digital
EDQ3000	1x 380Vac	passive digital
EDQ3000	1x 380Vac	analogue
EDQ3000	1x 380Vac	double CAN
EDQ3000	1x 380Vac	active digital
EDQ3000	2x 380Vac	passive digital
EDQ3000	2x 380Vac	analogue
EDQ3000	2x 380Vac	double CAN
EDQ3000	2x 380Vac	active digital
EDQ5000	1x 380Vac	passive digital
EDQ5000	1x 380Vac	analogue
EDQ5000	1x 380Vac	double CAN
EDQ5000	1x 380Vac	active digital
EDQ5000	2x 380Vac	passive digital
EDQ5000	2x 380Vac	analogue
EDQ5000	2x 380Vac	double CAN
EDQ5000	2x 380Vac	active digital
EDQ10K	1x 380Vac	passive digital
EDQ10K	1x 380Vac	analogue
EDQ10K	1x 380Vac	double CAN
EDQ10K	1x 380Vac	active digital
EDQ10K	2x 380Vac	passive digital
EDQ10K	2x 380Vac	analogue
EDQ10K	2x 380Vac	double CAN
EDQ10K	2x 380Vac	active digital
EDQ20K	1x 380Vac	passive digital
EDQ20K	1x 380Vac	analogue
EDQ20K	1x 380Vac	double CAN
EDQ20K	1x 380Vac	active digital
EDQ20K	2x 380Vac	passive digital
EDQ20K	2x 380Vac	analogue
EDQ20K	2x 380Vac	double CAN
EDQ20K	2x 380Vac	active digital

Model	Power	Interface
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Model	Power	Interface
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	supply	
ESQ160	1x 220Vac	passive digital
ESQ160	1x 220Vac	analogue
ESQ160	1x 220Vac	double CAN
ESQ160	1x 220Vac	active digital
ESQ160	2x 220Vac	passive digital
ESQ160	2x 220Vac	analogue
ESQ160	2x 220Vac	double CAN
ESQ160	2x 220Vac	active digital
ESQ350	1x 220Vac	passive digital
ESQ350	1x 220Vac	analogue
ESQ350	1x 220Vac	double CAN
ESQ350	1x 220Vac	active digital
ESQ350	2x 220Vac	passive digital
ESQ350	2x 220Vac	analogue
ESQ350	2x 220Vac	double CAN
ESQ350	2x 220Vac	active digital
ESQ900	1x 220Vac	passive digital
ESQ900	1x 220Vac	analogue
ESQ900	1x 220Vac	double CAN
ESQ900	1x 220Vac	active digital
ESQ900	2x 220Vac	passive digital
ESQ900	2x 220Vac	analogue
ESQ900	2x 220Vac	double CAN
ESQ900	2x 220Vac	active digital

	supply	
ESQ900	1x 380Vac	passive digital
ESQ900	1x 380Vac	analogue
ESQ900	1x 380Vac	double CAN
ESQ900	1x 380Vac	active digital
ESQ900	2x 380Vac	passive digital
ESQ900	2x 380Vac	analogue
ESQ900	2x 380Vac	double CAN
ESQ900	2x 380Vac	active digital
ESQ2000	1x 220Vac	passive digital
ESQ2000	1x 220Vac	analogue
ESQ2000	1x 220Vac	double CAN
ESQ2000	1x 220Vac	active digital
ESQ2000	2x 220Vac	passive digital
ESQ2000	2x 220Vac	analogue
ESQ2000	2x 220Vac	double CAN
ESQ2000	2x 220Vac	active digital
ESQ2000	1x 380Vac	passive digital
ESQ2000	1x 380Vac	analogue
ESQ2000	1x 380Vac	double CAN
ESQ2000	1x 380Vac	active digital
ESQ2000	2x 380Vac	passive digital
ESQ2000	2x 380Vac	analogue
ESQ2000	2x 380Vac	double CAN
ESQ2000	2x 380Vac	active digital

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Degree of protection: IP68 (72h/10m)

Type Approval documentation

Tests carried out

Applicable tests according to DNV GL Class Guideline CG0339, December 2019.

Marking of product

The products to be marked with:

- Eltorque Automation (Xiamen) Ltd.
- Model name
- Serial number
- Supply voltage

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.



Job Id: **262.1-034112-1**
Certificate No: **TAA00002UD**

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE